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ABSTRACT

A format for isolating key components of the faculty flow process and communicating this information to interested audiences is described, and formal faculty flow models are reviewed. Many rational faculty flow models are based on the Markov-chain analytical framework; however, when funding and enrollments are uncertain, the complexity of faculty composition becomes more difficult to model realistically. It is suggested that the situation at many colleges and universities does not meet the requirements and assumptions of these rational models and that complex institutions are typically governed by a political process, consisting of competing interests. An alternative strategy is proposed that seeks to familiarize the various interests and coalitions of the institution with the trends in faculty turnover and potential causes. The approach utilizes historical data in graphical formats. A graph illustrates that resignations and employment of temporary faculty are declining, while terminations and retirements are about stable at low levels. Historical data can also be used to show how individual faculty members move through faculty ranks. Multiple discriminant analysis is a good approach for handling a large number of variables. (SW)

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FACULTY TURNOVER AND TERMINATION: A LONGITUDINAL ANALYSIS

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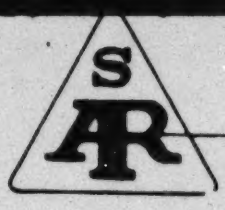

SOUTHERN ASSOCIATION FOR INSTITUTIONAL RESEARCH

This paper was presented at the 1982 Annual Conference of the Southern Association for Institutional Research held in Birmingham, Alabama, October 1982. It was reviewed by the SAIR Publications Committee and was judged to be of high quality and of interest to others concerned with the research in higher education. This paper has therefore been selected to be included in the ERIC collection of Conference Papers.

Gerald W. McLaughlin
President, SAIR

ABSTRACT

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This paper illustrates a format for isolating key components of the faculty flow process and communicating this information to interested audiences. This increasing interest, plus the fact that faculty turnover has decreased at the same time that student enrollments have stagnated and resources are harder to obtain, has emphasized the importance of studying faculty flow. While sophisticated quantitative models of faculty flow are available, the situation at many colleges and universities do not have the conditions that meet the requirements and assumptions of these rational models. Complex institutions are typically governed by a political process, consisting of competing interests, that is both covert and convoluted that it defies rational model construction. An alternative strategy is suggested which aims to familiarize the various interests and coalitions of the institution with the trends in faculty turnover and factors that appear to be influencing these trends. This is done by using historical data which are presented in graphical formats.

Faculty Turnover and Terminations: A Longitudinal Analysis

With the slowdown in demand for college faculty, the turnover and retirement of faculty have become issues of increasing concern that affect the academic and financial well-being of colleges and universities. Added to the difficulty of hiring new and "fresh" faculty is the problem of losing valuable, established faculty to private industry and business. Administrators are beginning to be concerned with situations in which valuable faculty are lost, while "dead wood" faculty cannot be pruned.

A frequent approach to study faculty flow has been to employ sophisticated quantitative models that require a number of assumptions that many institutions do not conform to. This paper reviews some formal models which are intended as input into a rational planning process. Additionally, a format and plan is offered which familiarizes key components of the institution's constituencies with empirical information about existing trends in faculty flow. This preplanning preparation is intended to prepare the various interests for the rational projection models and then consideration of alternative policies to deal with faculty flow.

Models of Faculty Flow

Faculty flow models are often used as major planning tools by academic administrative decision makers. Flow models simulate what various changes in institutional policies would do to the number of faculty positions available for filling. The estimation of the effects of proposed policy changes concerning faculty upon the composition of

the faculty and rate of turnover is possible with the various flow models (Spinney & McLaughlin, 1979; Bleau, 1982).

Previous studies have attempted to address the question of the contraction of demand for faculty (Fernandez, 1978), the impact of faculty policy changes (Spinney & McLaughlin, 1979), and factors that influence departing faculty members (Patton, 1979; Snow & Havinghurst, 1977). Other studies have focused on the implications of retirement policies for institutions of higher education (Hughes, 1981; Simpson, 1979; Hopkins, 1974).

Two widely distributed flow models are the Stanford model (Hopkins, 1974) and the Oregon State model (Bloomfield, 1977). These models are based upon the analytical framework called the Markov-chain model. These models are time dependent. They yield such analytically useful properties as transitional probabilities. Such probabilities allow for the prediction of faculty movements from year to year (Massy & Hopkins, 1982). The Markovian-chain models are powerful planning tools, and any formal planning process reviewing proposed changes in faculty personnel policies would be greatly assisted by the output of a Markov model. But no model, regardless of how sophisticated, can accurately account for exogenous influences and shocks. When external supports and resources are assured, a Markovian model is an invaluable tool for planning. However, in situations where growth is limited because of uncertainty in funding and enrollments, the complexity of faculty composition becomes much more difficult to model realistically.

Political Realities of Faculty Flow

Colleges and universities are driven by political concerns which

supersede the bounds of rational planning models needed for Markovian analyses. The political model shows a college or university to be democratically governed by bargaining and negotiations between conflicting interests rather than as being institutionally driven by a specific, overriding management philosophy (Dressel, 1981, Chapter 6). In actuality, faculty flow is a political process. Publishing and attaining tenure take place in a political environment. The very agenda that establishes a concern for faculty flow is a product of conflicting internal and external demands upon an institution. The use of faculty flow information within an institution is a result of political factors rather than rational decision making (Walker, 1979, Chapter 3).

In the rational model of decision making, more information increases the likelihood of making the proper decision. However, in the real world of politics, information is seen as symbolic of power and prestige. Prerogatives about and access to information are often jealously guarded. This is often the case because the decision has been reached prior to receiving the information. By displaying the report and couching their decisions in terms of it, decision makers imply they have properly used prestigious and valuable information sources. The report becomes a victim in the scenario of public display of proper decision making (Feldman & March, 1981). A more circuitous method is necessary to communicate vital information about faculty flow. As previously noted, information must be circulated among the institution's various constituencies and validated by feedback from internal or even external sources

before administrators and decision makers feel comfortable accepting or acting upon it (Smith, 1980).

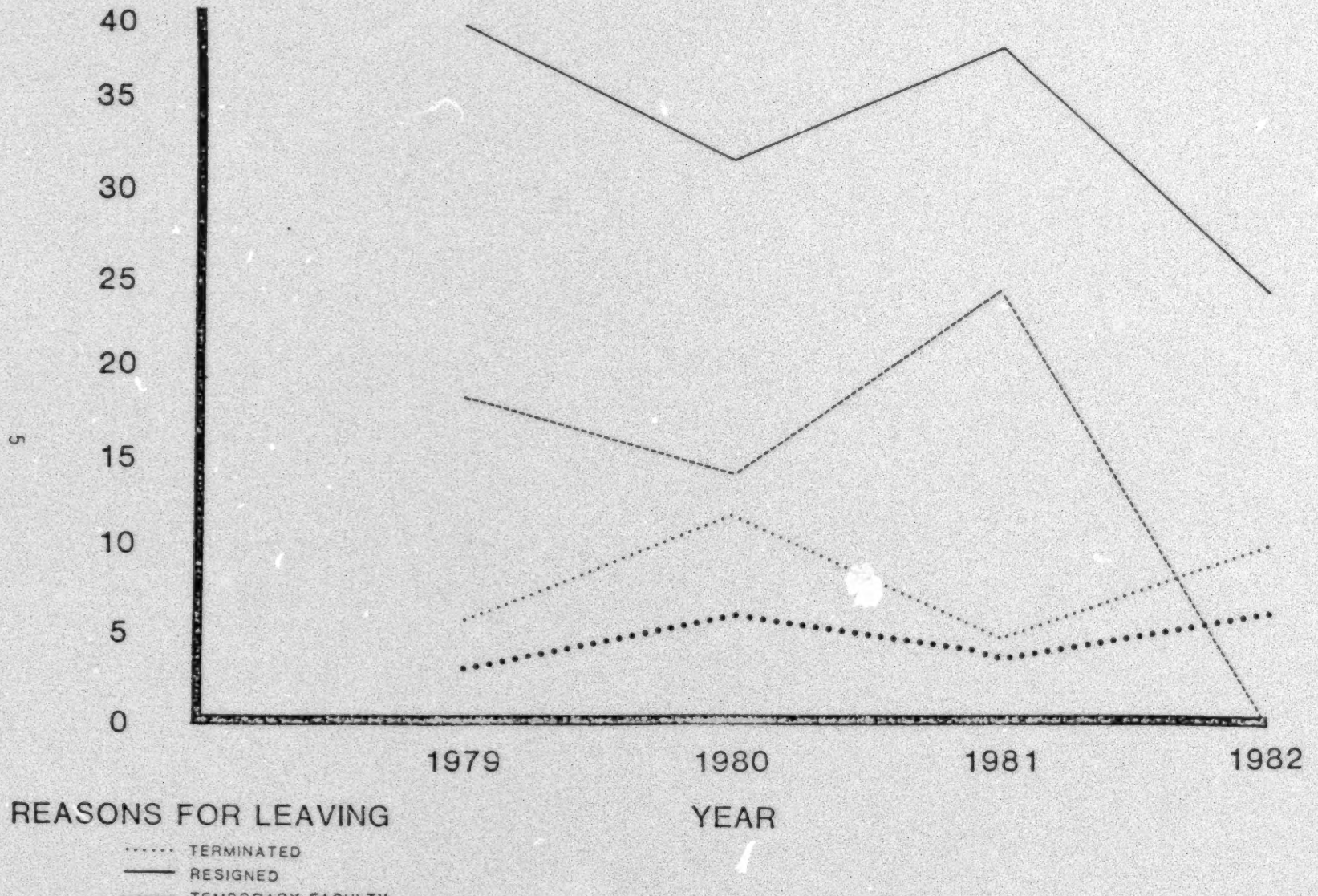
An Alternative Approach

Perhaps an effective way to introduce and familiarize key administrators to the question of faculty flow and turnover would be to display historical data over time on a simple graph, such as that shown in Figure 1. This approach is a possible format to encourage an awareness of the issue of faculty turnover. The trends illustrated in Figure 1 indicate that resignations are dropping, as is the employment of temporary faculty members, while terminations and retirements are approximately stable at low levels. The information in Figure 1 allows the reader to become familiar with trends and might suggest to the individual some ramifications and reasons concerning faculty flow. This is a simple way to encourage the circulation and dissemination of information vital to the process of achieving the appropriate political compromise of the ways institution might modify its faculty turnover.

As suggested by Figure 1, this study uses historical data about faculty but does not attempt to produce projections of future faculty composition. This approach was developed to be used in situations where the assumptions of other models could not be met. The pressures generated by changing student enrollment patterns, the demand to retain highly qualified faculty, the need to hold down instructional costs, and the desire to recruit promising new teachers and scholars result in a dynamic, high voltage, politicized arena for conflict, both internal and external. The Markovian models require assumptions that cannot be maintained in

FIGURE 1

TRENDS IN REASONS FOR LEAVING FOR FOUR YEARS



such a politicized environment. It is analogous to the attempts to try to predict the movements of stock market prices which appear, after much analysis, to be virtually unpredictable.

Another way to explore the historical data about faculty members is to use historical data on how individual faculty members move through faculty ranks. Because of the large number of variables that are available, some type of multivariate model is needed to sort through them. Multiple discriminant analysis is used to determine what demographic, personal, professional, and academic characteristics can be used to predict retirement, involuntary terminations, and voluntary departures. Longitudinal data over four academic years were used. The data were taken from a public university with a faculty of more than 800 persons and a student body in excess of 15,000 members.

As a test of whether faculty characteristics are indicative of leaving or staying, all faculty members for a four-year period are included in a data base that reflected demographic and academic information about all faculty members who had left or were still employed during the four-year period. These 1120 faculty members are grouped according to whether they are still employed, have been terminated, resigned, have completed their temporary appointments, or have formerly retired. A residual category is also included. These groupings of faculty who have left are then compared with those who are still employed.

A convenient method of handling a large number of variables is multiple discriminant analysis, using the background and academic

variables to distinguish or discriminate among the reasons for leaving. Such discriminant analysis as shown in Table 1 is not intended for the casual perusal of busy administrators or the institutional constituencies. Rather, this multivariate analysis is intended to isolate the key variables which may be indicative of unusual rates of retiring or staying. What is of possible use and interest to administrators and decision makers are the classification resluts.

A brief summary interpretation of the total structure coefficients of Table 1 follows:

* Faculty members who are not likely to leave include those with higher salaries, having 9-month contracts, and more years at the institution. Instructors are more likely to leave and especially those faculty members with temporary appointments.
* The analysis suggests that the business school made heavy use of temporary faculty.
* Only 1% of those faculty still employed would be predicted to either resign or retire, and 3% would be predicted to have terminated.
* Of those who left, the terminated group has the lowest level of accurate classification (47%). Twenty five percent were predicted to resign and 13% were predicted to still be employed.

It is obvious that the discriminant analysis itself would have little meaning or interest to general college or university audiences. As noted above, it does allow certain individual variables to be isolated that suggest the need for further elaborations or additional study.

Table 1

MULTIPLE DISCRIMINANT ANALYSIS OF REASONS FOR LEAVING USING

SELECTED BACKGROUND AND ACADEMIC VARIABLES FOR FACULTY MEMBERS

	TOTAL STRUCTURE COEFFICIENTS					F TO REMOVE
VARIABLES	Function I	Function II	Function III	Function IV	Function V	
Demographics						
Age	.17	-.33	.64	-.22	-.13	24.59
Years at Institution	.27	-.24	.48	.33	-.34	14.54
RANK INFORMATION						
Rank Level						
Distinguished Professor	.02	-.03	.12	.07	-.08	31.93
Professor	.18	-.007	.08	.10	-.13	99.80
Associate Professor	.20	.008	-.02	.04	-.22	110.93
Assistant Professor	.12	-.06	.003	-.13	.35	116.83
Instructor	-.12	.22	-.09	.12	.03	100.44
Years in Rank						
Distinguished Professor	.02	-.04	.12	.09	-.08	*
Professor	.12	-.09	.29	.21	-.27	*
Associate Professor	.18	-.07	.19	.28	-.37	*
Assistant Professor	.12	-.18	.24	-.04	.26	2.59
Instructor	-.09	-.0009	-.19	-.08	-.08	5.88
BUDGET INFORMATION						
Contract Type						
Academic Year	.32	.01	-.03	.26	.13	44.17
Fiscal Year	.04	-.02	.08	-.19	-.20	51.25
Income Supplement	.04	-.01	.002	.02	-.01	29.10
Received Leave w/Pay	.02	-.03	.08	.08	-.12	6.20
Received Leave w/out Pay	-.06	-.13	-.19	.18	-.22	30.17
Salary Average	.32	-.24	.15	-.09	-.32	5.66
EFT Average	.18	-.57	-.16	-.14	-.19	43.53
ACADEMIC PROGRAM						
Fine Arts	.04	-.05	.12	.17	.07	6.57
Humanities	.06	-.04	.02	.13	.01	4.31
Natural Sciences	.06	-.02	-.05	-.02	.23	3.82
Social Sciences	.06	-.04	-.02	-.11	-.17	3.69
Business Administration	-.03	.32	.22	.13	-.04	8.99
Education	.05	-.07	-.04	.21	.42	11.60
Paramedical	.01	-.07	-.16	-.01	.02	4.54
Law	.03	.009	-.003	.008	-.01	2.43
General Studies	.03	.02	-.04	-.27	-.18	*
Remedial Studies	.02	-.02	-.07	.04	-.14	2.00
GROUP CENTROID						
1) Still Employed	.84	.06	-.006	.009	-.004	
2) Terminated	-2.30	-.40	-.08	.42	.87	
3) Resigned	-2.61	-.83	-.64	.15	-.15	
4) Temporary Faculty	-3.47	2.68	.41	.04	-.08	
5) Retired	-2.09	-2.21	2.76	.75	-.21	
6) Other**	-1.99	-.83	.48	-1.57	.10	
EIGENVALUES	2.27	.54	.19	.10	.03	
CANONICAL CORRELATIONS	.83	.59	.40	.30	.16	

CLASSIFICATION RESULTS

		PREDICTED GROUP (%)					
ACTUAL GROUP	N	STILL EMPLOYED	TERMINATED	RESIGNED	TEMPORARY FACULTY	RETIRED	OTHER**
1) Still Employed	848	91	3	1	2	1	3
2) Terminated	32	13	47	25	13	3	0
3) Resigned	131	8	15	57	8	2	11
4) Temporary Faculty	54	0	2	26	72	0	0
5) Retired	19	5	0	5	0	79	11
6) Other**	36	11	11	11	11	0	56
TOTAL (N)	1120						

Percent Correctly Classified = 83%

*Variables were not entered

**The other category includes faculty who have died, transferred to non-faculty positions, were employed on a visiting basis

There does exist a possible way to present the findings of the discriminant analysis to audiences unfamiliar with the technical argot of multivariate analysis. One way is the classification results mentioned above. Another way is the territorial map which presents a graphic schema of the groups' spatial representation to one another. This territorial map quickly shows the interested observer the relative distance and location of the groups (see Figure 2). Some of the possible interpretations of the map include:

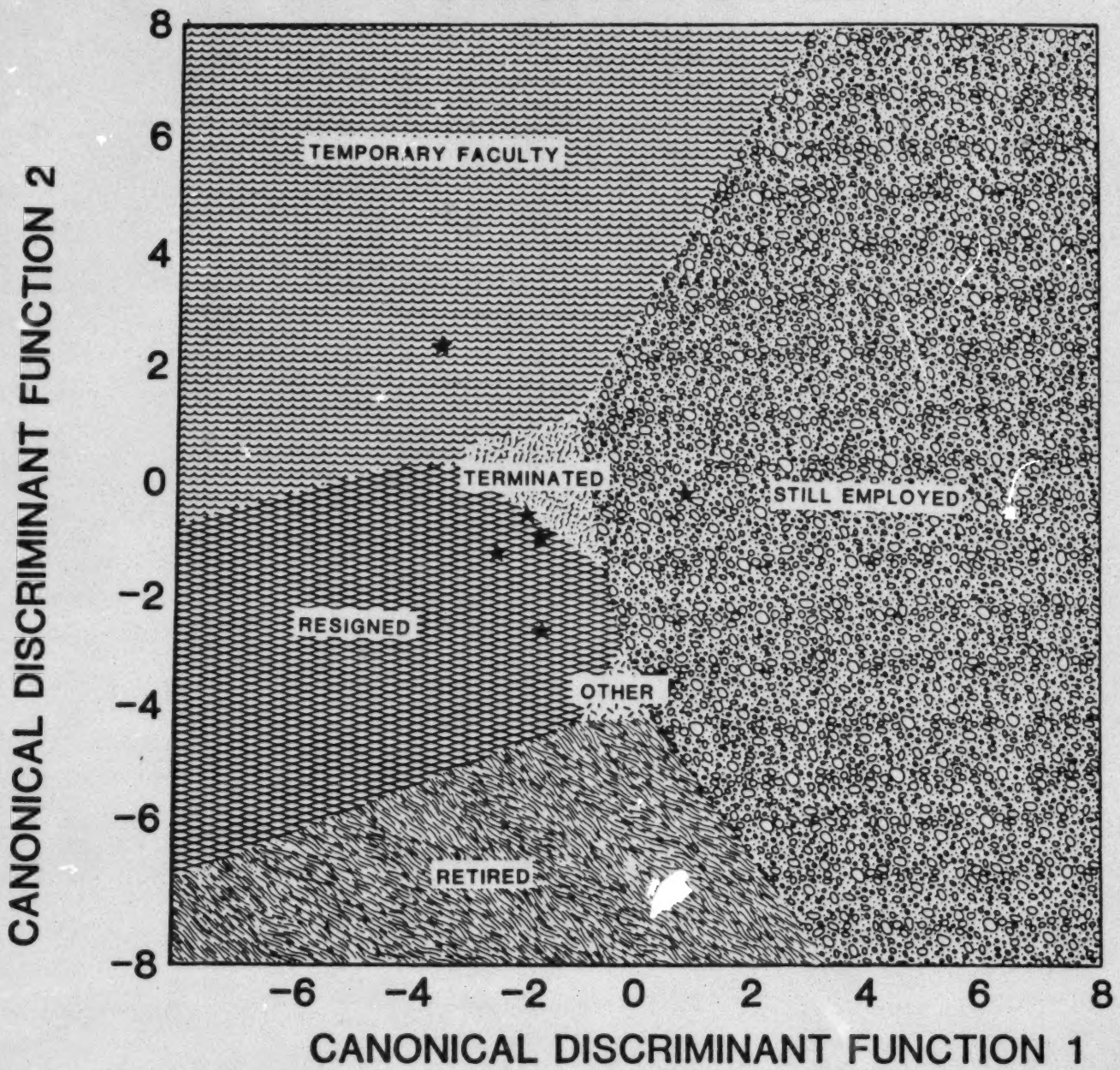
* The still employed group borders on all the other groups.
* Temporary appointments are quite distant from those who have retired.
* The termination group is between the still employed and resigned group.

Discussion

The major purpose of this paper has been to illustrate a format for isolating key components of the faculty flow process and communicating this information to interested audiences. This increasing interest, plus the fact that faculty turnover has decreased at the same time that student enrollments have stagnated and resources are harder to obtain, has emphasized the importance of student and faculty flow. While sophisticated quantitative models of faculty flow are available, many colleges and universities do not have the conditions that meet the requirements and assumptions of these rational models. Complex institutions are typically governed by a political process consisting of competing interests that is both so covert and convoluted that it defies

FIGURE 2

TERRITORIAL MAP OF REASONS FOR LEAVING



NOTE: ASSUMES ALL FUNCTIONS BUT THE FIRST TWO ARE ZERO

★ GROUP CENTROIDS

10

rational model construction. It is suggested in this paper that if a sophisticated model of faculty flow is not appropriate to a particular college or university, an alternative strategy might be to familiarize the various interests and coalitions of the institution with the trends in faculty turnover and factors that appear to be influencing these trends. Implications of this study have significance for college and university administrators relative to concerns of the effects on the minority and gender distribution of the faculty, salary structure, discipline coverage, and other academic and demographic characteristics of the faculty.

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